Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

ON THE TERRESTRIAL VERTEBRATES OF PORTIONS OF SOUTHERN NEW MEXICO AND WESTERN TEXAS.

BY WITMER STONE AND JAMES A. G. REHN.

In the spring and early summer of 1902, Mr. H. L. Viereck and the junior author spent about eleven weeks in the Sacramento Mountain region of south-central New Mexico. The expedition was undertaken in the interest of the Academy, under the direction of the Board of Curators, and quite extensive collections of plants and insects as well as a fair representation of other groups were secured.

The localities visited and represented by specimens in the collections are as follows:

Ysleta, El Paso county, Tex. Elevation, 3,664 feet. A village along the Rio Grande a short distance below El Paso. April 2d to 4th was spent here, and collecting carried on in the cultivated strip between the river and sand hills ("bosque"), and also in the latter very unproductive section.

El Paso, Tex. Elevation, 3,713–4,000 feet. Collecting was pursued in the foothills of the Franklin Mountains to the north of the city. March 31st and April 4th to 6th were spent in this vicinity.

Alamogordo, Otero county, N. M., and vicinity. Elevation, 4,320 to 4,600 feet. This section was quite thoroughly examined, collecting being carried on by both members from April 7 to May 24, and by Mr. Viereck during several days in the earlier part of June. Alamogordo is situated in the broad San Augustine plain, two miles from the foothills of the Sacramento range, to which latter almost daily trips were made. The characteristic vegetation of this desert plain is greasewood or creosote bush (*Larrea*) and mesquite (*Prosopis*), with scattered cactus (*Opuntia*) and Spanish bayonet (*Yucca*), the latter becoming more abundant toward the foothills.

Dry Cañon, Otero county, N. M. Elevation about 4,600–5,000 feet. This cañon, being easiest of access from Alamogordo, was visited almost daily. The reptiles, insects and plants of this rather circumscribed region were very thoroughly collected.

Alamo Cañon, Otero county, N.M. Elevation about 5,000–5,300 feet. This cañon is considerably larger than the foregoing and contains a constant stream of pure water. It is located about seven miles southeast of Alamogordo, and collections were made here April 11, 16, and on several other occasions by Mr. Viereck.

Laluz Cañon, Otero county, N. M. Elevation at mouth about 5,000 feet. This cañon is about the size of Alamo Cañon, and contains a large stream of discolored alkaline water, locally known as the Laluz river. Laluz Cañon is located seven miles northeast of Alamogordo, and extends a great distance into the range, a portion of it being occupied by the railroad which reaches the upper slopes of the mountains. Several days were spent here collecting.

Highrolls, Otero county, N. M. Elevation about 7,000 feet. This locality is about half-way up the Sacramento range and was visited by Mr. Viereck early in June.

Cloudcroft, Otero county N. M. Elevation about 9,000 feet. Cloudcroft is located practically on the top of the Sacramentos, and collecting was carried on there by Mr. Viereck during the latter part of May and the early part of June.

While the authors are not prepared to enter into a lengthy dissertation on the faunal relations of the localities visited, still the general conclusions drawn from an examination of the material collected may prove worthy of record. Leaving the Texas localities out of consideration, as but little vertebrate material was obtained there, we come first to the immediate vicinity of Alamogordo. This appears to be truly Lower Sonoran (or Middle Sonoran, as has been proposed[1]), the vegetation, the most characteristic species of which have been mentioned before, as well as the reptiles, mammals, birds and insects, so far as studied, being characteristic of this zone. This fauna and flora seem to extend quite a distance up the bottoms and arroyos (torrent beds) of the cañons, while the slopes of the same and the foothills appear to possess more distinctly Upper Sonoran types, such as the sotol (*Dasylirion*), candle-wood (*Fouqueira*) and junipers (*Juniperus*). The piñon (*Pinus* sp.) does not extend so far down as the juniper, and makes its appearance only when Lower Sonoran types have totally disappeared from the arroyos. In Dr. C. Hart Merriam's latest faunal map of the United States two tongues of the Lower Sonoran are shown to enter New Mexico from the south, one along the valley of the Rio Grande and the other along the Pecos. From a study of the present material, it would seem that another Lower Sonoran tongue branches off from the

---

[1] The evidence on which this division was made does not appear sufficient. On almost equal grounds we might divide the Carolinian belt into at least two portions.

Rio Grande tract and runs up between the Organ and the Sacramento ranges, comprising the San Augustine plain.

Highrolls is situated near the lower border of the Transition zone, and possesses few types in common with Alamogordo, but shares quite a number with Cloudcroft. The latter locality is situated in heavy Canadian forests, throughout which are interspersed open glades. The fauna and flora of Cloudcroft are pure Canadian, and the surrounding timberland is one of the most important sources of lumber in the southwest.

Considerable material other than that collected by the expedition was examined in the preparation of this paper. In such cases full credit is given to the sources from which these specimens were obtained. We are, however, under especial obligations to Mr. Gerrit S. Miller, Jr., of the United States National Museum; Dr. J. A. Allen, of the American Museum of Natural History, New York, and Dr. C. Hart Merriam, Chief of the Biological Survey, United States Department of Agriculture, for the loan of specimens of mammals.

While concurring in the identifications and statements contained in the following pages, the authors would have it understood that Mr. Rehn is responsible for the portion on mammals and Mr. Stone for the birds and reptiles.

MAMMALS.

Sciurus fremonti lychnuchus n. subsp.

Type: No. 11,105, Coll. Acad. Nat. Sciences of Philadelphia. ♂ Forks of Ruidoso, Lincoln county, N. M. August 18, 1898. Collected by C. M. Barber.

Related to *S. f. neomexicanus* Allen, but differing in the larger size, more rufous coloration and in the much more elongate nasals.

Distribution.—This form is at present represented only by material from the White Mountain region, but probably occurs also in the Capitan and Sacramento sections.

Color.—Above dull ferruginous, strongest on the median section, the color clearer and most intense on the rump, where the usual faint blackish vermiculations are almost absent. Sides above the lateral line pale rufescent with an ochraceous tinge; lateral line narrow, not very distinctly defined and with many ochraceous hairs intermingled. Head washed with blackish, the orbital ring clear white; ears externally ferruginous touched with blackish at the apex, which bears a scant pencil. Fore limbs clear rufescent above, the lateral fringe of the feet silvery white. Hind limbs dull ferruginous, becoming rufescent on the upper surface of the feet. Tail above centrally rich ferruginous, most intense basally, lateral fringe with the basal portion of the hairs black, the apical section pale ochraceous, the black becoming more extensive toward the apex of the tail and forming an almost clear black bar about 20 mm. in length, the extreme tip being formed by the pale ochraceous tips of the hair. Lower surface of the tail pale grayish ochraceous, the successive black and ochraceous color divisions being marked as above; toward the apex of the tail a trace of the upper color is noticed suffusing the grayish ochraceous portion. Under surface, including the lips, chin, throat, under surface of the limbs and feet, whitish, pure on the throat, mixed elsewhere with the tint of the pale mouse-colored under fur.

Skull.—The skull of *S. fremonti lychnuchus* differs from that of *S. fremonti neomexicanus* in its more elongate form and slender and more attenuate nasals. The skull of *lychnuchus* is comparatively narrower than that of *neomexicanus*, and the zygomatic region appears compressed. The nasals average 1.7 mm. longer in *lychnuchus* than in *neomexicanus*, while they really average narrower in width by .2 mm.

Measurements.—Flesh dimensions of the type: Total length, 350 mm.; length of tail, 140; length of hind foot, 55. Average of three specimens (flesh measurements): Total length, 335 (326–350); length of tail, 140; length of hind foot, 53.3 (51–55). Average of seven specimens of *S. fremonti neomexicanus:*[2] Total length, 321 (308–330); length of tail, 133 (127–145); length of hind foot, 48.5 (45–52).

The type skull of *lychnuchus* measures as follows: Total length, 50 mm.; basilar length, 42; greatest zygomatic width, 29; length of nasals, 16; width of nasals, 8.2. The average of six skulls of the new form is: Total length, 49 (48–51); basilar length, 40.9 (40–42.2); greatest zygomatic width, 27.9 (27–29); length of nasals, 15.7 (15.5–16); width of nasals, 7.4 (7–8.2). Average of four skulls of *neomexicanus:*[3] Total length, 45.9 (43.5–47.3); length of nasals, 14.3 (13.7–15). The two skulls of topotypes of *neomexicanus* examined by us give the following measurements: Total length, 46.7 (46.5–47); basilar length, 39.7 (39–40.5); greatest zygomatic width, 27.7 (27–28.5); length of nasals, 14; width of nasals, 7.6 (7.5-7.7).

Specimens Examined.—Four skins from the type locality, Rio Ruidoso and Mescalero, all in the White Mountains. One of the skins and three additional skulls were from the collection of the American Museum of Natural History.

---

[2] Allen, *Bull. Amer. Mus. Nat. Hist.*, X, p. 291.

[3] *Ibid.*

Remarks.—While no specimens of *neomexicanus* in summer pelage are available, the great difference in color, aside from the larger size and distinctive cranial characters, lead to the opinion that a very distinct geographic form of the *neomexicanus* type is represented in this material. Two topotypes of the latter form from the collection of the Biological Survey were examined in this connection, and also four specimens (including the type) of *mogollonensis* from the American Museum collection. No close relationship exists with the latter form, which is of a more grizzled and smoky coloration, as well as having the skull rather different in character.

Eutamias cinereicollis canipes Bailey.

1902. *Eutamias cinereicollis canipes* Bailey, Proc. Biol. Soc. Wash., XV, p. 117, June 2, 1902. (Guadalupe Mts., El Paso county, Tex.)

The material at hand shows that this form is well distributed over the higher portions of the White Mountains, while information from a reliable source gives it as occurring at Cloudcroft. Material has been examined from the following localities: Forks of Ruidoso, Rio Ruidoso, Mescalero and Hale's Ranch, Ruidoso.

Compared with *E. cinereicollis,* (Allen) this form is readily differentiated by the diagnostic characters given by Bailey—the paler and duller ochraceous tints, the white tips to the hair on the upper surface of the tail, and by the grayer feet. One differential character which seems to have been overlooked in the original description is the absence of solid black in the lateral dorsal stripes. In all the specimens (7) examined these are mixed blackish and rusty, while in *cinereicollis* the centers at least are solid black.

Eutamias quadrivittatus (Say).

1823. *Sciurus quadrivittatus* Say, Long's Expedition to Rocky Mts., II, p. 45. (At the exit of the Arkansas river from the foothills, Colorado.)

One specimen from Canoncita, above Cleveland, Mora county, N. M., collected by Emerson Atkins, and submitted by Prof. Cockerell, is indistinguishable from specimens from Boulder, Colo.

Citellus spilosoma arens (Bailey).

1902. *Spermophilus spilosoma arens* Bailey, Proc. Biol. Soc. Wash., XV, p. 118, June 2, 1902. (El Paso, Tex.)

Three specimens of this form from the vicinity of Alamogordo, Otero county, N. M., are identical with a series from El Paso and Fort Hancock, Tex. A young specimen from Mesilla, N. M., is clearly referable to this form.

Citellus marginatus (Bailey).

1902. *Spermophilus spilosoma marginatus* Bailey, Proc. Biol. Soc. Wash., XV, p. 118, June 2, 1902. (Alpine, Brewster county, Tex.)

Two specimens from Pecos, Tex., and vicinity of Alamogordo, Otero county, N. M., agree perfectly with the description of this form. The inference drawn from the occurrence of *marginatus* in communities with *arens* is that they represent distinct species, the coloration being typical as well as the proportions. The length of the hind feet appears to be an excellent diagnostic character.

Citellus mexicanus parvidens (Mearns).

1896. *Spermophilus mexicanus parvidens* Mearns, Preliminary Diagnoses of New Mammals from the Mexican Border of the United States, p. 1, March 25, 1896. (Fort Clark, Kinney county, Tex.)

Three specimens of this form are included in the series examined, all being from Pecos, Tex. Two of the specimens are the property of the Academy, the other belonging to the American Museum. Compared with topotypes the Pecos specimens are seen to be identical, and are easily separated from Brownsville specimens, which latter appear to represent true *mexicanus.*

Citellus grammurus (Say).

1823. *S[ciurus] grammurus* Say, Long's Exped. Rocky Mts., II, p. 72. (Arkansas river, at its exit from the foothills, Colorado.)

A specimen from Rio Ruidoso, Lincoln county, appears to represent the typical form.

Citellus tridecemlineatus pallidus (Allen)?

1877. [*Spermophilus tridecemlineatus*] var. *pallidus,* Allen, Monogr. N. Amer. Rodentia, p. 872, August, 1877. (Plains of the lower Yellowstone river.)

A specimen of the thirteen-lined spermophile from Agua Fria Park, Colfax county, N. M., collected by Emerson Atkins, was submitted by Prof. Cockerell. While by no means true *pallidus,* still it appears to be closer related to this than to any other form. The condition of the specimen is quite unsatisfactory for conclusive comparison.

Cynomys arizonensis Mearns.

1890. *Cynomys arizonensis* Mearns, Bull. Amer. Mus. Nat. Hist., II, p. 305, February 21, 1890. (Point of mountain, near Wilcox, Ariz.)

An adult male of this species from the San Augustine plain (or Tularosa Valley), near Alamogordo, Otero county, N. M., appears to be absolutely identical with the Arizona form. On comparison the skull is found to be identical with representatives of *arizonensis* from San Luis Springs, Mexican boundary, determined by Mearns. The length of head and body considerably exceeds the maximum given in the original description.

This individual was from a small colony of about thirty holes.

Onychomys arcticeps Rhoads.

1898. *Onychomys arcticeps* Rhoads, Proc. Acad. Nat. Sci. Phila., p. 194. May 3, 1898. (Clapham, Union county, N. M.)

A series of eight specimens from the vicinity of Alamogordo, Otero county, N. M., appear to be much closer related to *arcticeps* than to *torridus arenicola* Mearns from near El Paso, Tex. The ears are considerably blacker than in *t. arenicola,* and the facial markings are more distinct, while the tail is much shorter.

Onychomys ruidosæ n. subsp.

Type: No. 11,091, Coll. Acad. Nat. Sciences of Philadelphia. ♀. Ruidoso, Lincoln county, N. M. September 19, 1898. Collected by C. M. Barber.

Apparently related to *O. melanophrys,* but differing in its more reddish coloration, darker head and ears, and in the narrower interpterygoid fossa.

Distribution.—Specimens from Hale's Ranch in the White Mountain region, have also been examined.

Color.—Above dull ferruginous, becoming almost clear rufous on the rump; head and nape blackish-gray washed with ferruginous; ears blackish-gray beset with fine silvery-white hairs, which are most abundant toward the apex; chin pale grayish-pink. Under surface, including fore and hind limbs (except posterior surface of hind legs), dull white, the under fur plumbeous. Tail rather thinly haired, with the upper surface mixed brown and white.

Skull.—The skull of *ruidosæ* closely resembles that of *melanophrys,* but differs in the broader rostrum and nasals, the more truncate occipital region, the narrower interpterygoid fossa and in the stouter and heavier condylar process of the mandible.

Measurements.—Flesh dimensions of type: Total length, 156 mm.; length of tail, 47; length of hind foot, 22.

Remarks.—While closely related to the *melanophrys* group, *ruidosæ* is a very distinct species. Relationship exists with *fuliginosus* Merriam and *torridus* Coues, but the former is immediately separated by the slenderer skull and weaker incisors, beside the narrower rostrum and nasals as well as the smaller auditory bullæ. From *torridus* it is easily differentiated by the deeper coloration, the grayer head and the more indefinite lateral line, as well as the much greater size.

Peromyscus texanus sonoriensis (Le Conte).

1853. *Hesperomys sonoriensis* Le Conte. Proc. Acad. Nat. Sci. Phila., p. 413. (Santa Cruz, Sonora.)

Three specimens from the vicinity of Alamogordo, Otero county,

N. M., appear indistinguishable from specimens of *sonoriensis* collected by the Mexican Boundary Survey.

Peromyscus truei (Shufeldt).

1885. *Hesperomys truei* Shufeldt, Proc. U. S. National Museum, VIII, p. 407, September 14, 1885. (Fort Wingate, N. M.)

Six specimens from Hale's Ranch, Ruidoso, Lincoln county, N. M., appear identical with a topotype from the collection of the U. S. National Museum. An apparently immature specimen from Las Vegas, collected by Emerson Atkins, and submitted by Prof. Cockerell, appears to be referable to this form.

Peromyscus tornillo Mearns.

1896. *Peromyscus tornillo* Mearns, Preliminary Diagnoses of New Mammals from the Mexican Border of the United States, p. 3, March 25, 1896. (Near El Paso, Tex.)

Specimens from Mesilla, Donna Ana county, and Clapham, Union county, N. M., are slightly darker than the type of *tornillo*, though apparently referable to the same form.

Peromyscus rufinus (Merriam).

1890. *Hesperomys leucopus rufinus* Merriam, North American Fauna, No. 3, p. 65, September 11, 1890. (San Francisco Mountain, Ariz.)

Six specimens examined from Forks of Ruidoso, Lincoln county, and Mescalero, Otero county, N. M.

Sigmodon hispidus berlandieri (Baird).

1855. *Sigmodon berlandieri* Baird, Proc. Acad. Nat. Sci. Phila., VII, p. 333. (Rio Nazas, Coahuila, Mex.)

Two specimens examined from Mesilla, Donna Ana county, N. M., and Pecos, Reeves county, Tex.

Neotoma micropus canescens Allen.

1891. *Neotoma micropus canescens* Allen, Bull. Amer. Mus. Nat. Hist., III, p. 285, June 30, 1891. (North Beaver creek, Panhandle of Oklahoma.)

A specimen from Pecos, Reeves county, Tex., differs considerably from a Brownsville, Tex., specimen, and agrees with a specimen from Fort Hancock, Tex., in the much paler coloration.

Neotoma mexicana Baird.

1855. *Neotoma mexicana* Baird, Proc. Acad. Nat Sci. Phila.. VII, p. 333. (Mountains near Chihuahua, Mex.)

Seven specimens examined from the following localities: Ruidoso, Forks of Ruidoso and Hale's Ranch, Lincoln county, and Mescalero, Otero county, N. M.

Cratogeomys castanops (Baird).

1852. *Pseudostoma castanops* Baird, Rep. Stansbury's Exped. Great Salt Lake, p. 313, June, 1852. (Near Las Animas, Colo.)

Three specimens examined from Pecos, Reeves county, Tex.

Thomomys fulvus (Woodhouse).

1852. *Geomys fulvus* Woodhouse, Proc. Acad. Nat. Sci. Phila., VI, p. 201. (San Francisco Mountain, Ariz.)

Specimens of this form have been examined from Hale's Ranch, Lincoln county, and Las Vegas, San Miguel county, N. M., the latter collected by Emerson Atkins and submitted by Prof. Cockerell. One specimen from the latter locality is uniform plumbeous, except the feet and mouth, which are white.

Thomomys fossor Allen.

1893. *Thomomys fossor* Allen, Bull. Amer. Mus. Nat. Hist., V, p. 51, April 28, 1893. (Florida, La Plata county, Colo.)

One specimen of this species from Agua Fria Park, Colfax county, N. M., collected by Emerson Atkins, was submitted by Prof. Cockerell. It agrees with the type except for the more hirsute tail.

Dipodomys merriami ambiguus (Merriam).

1890. *Dipodomys ambiguus* Merriam, North American Fauna, No. 4, p. 42, October 8, 1890. (El Paso, Tex.)

A fine series of sixteen specimens of this form was collected in the vicinity of Alamogordo, Otero county, N. M., and a single specimen was also examined from Pecos, Reeves county, Tex. A considerable range of variation is presented in the series, some specimens appearing quite grayish in comparison to the usual pale buffy coloration.

Dipodomys spectabilis Merriam.

1890. *Dipodomys spectabilis* Merriam, North American Fauna, No. 4, p. 46. October 8, 1890. (Dos Cabezos, Ariz.)

A specimen of this form from vicinity of Alamogordo, Otero county, N. M., probably not quite mature, differs from topotypes from the Biological Survey collection in the slightly smaller size and more grayish coloration.

Perodipus ordii (Woodhouse).

1853. *Dipodomys ordii* Woodhouse, Proc. Acad. Nat. Sci. Phila., VI, p. 235. (El Paso, Tex.)

A specimen of this species was examined from Pecos, Reeves county, Tex.

Perognathus flavus Baird.

1855. *Perognathus flavus* Baird, Proc. Acad. Nat. Sci. Phila., VII, p. 332. (El Paso, Tex.)

Six specimens of this form from the vicinity of Alamogordo, Otero county, N. M., were examined.

Perognathus penicillatus eremicus (Mearns).

1898. *Perognathus* (*Chœtodipus*) *eremicus* Mearns, Bull. Amer. Mus. Nat. Hist., X, p. 300, August 31, 1898. (Fort Hancock, Tex.)

Two specimens of this race were collected in the vicinity of Alamogordo, Otero county, N. M.

Perognathus hispidus paradoxus (Merriam).

1889. *Perognathus paradoxus* Merriam, North American Fauna, No. 1, p. 24. October 25, 1889. (Banner, Kan.)

Two specimens of this form were examined, one from Mesilla, Donna Ana county, and the other from Rio Gallinas, Las Vegas, San Miguel county, N. M., collected by Emerson Atkins and submitted by Prof. Cockerell.

Perognathus intermedius Merriam.

1889. *Perognathus intermedius* Merriam, North American Fauna, No. 1, p. 18, October 25, 1889. (Mud Spring, Ariz.)

The collection of the Academy contains a male from Mesilla, Donna Ana county, N. M.

Lepus arizonæ minor Mearns.

1896. *Lepus arizonœ minor* Mearns, Proc. U. S. Nat. Mus., XVIII, p. 557, June 24, 1896. (El Paso, Tex.)

Two specimens from Pecos, Reeves county, Tex., are referable to this form.

Lepus texianus griseus Mearns.

1896. *Lepus texianus griseus* Mearns, Proc. U. S. Nat. Mus., XVIII, p. 562, June 24, 1896. (Fort Hancock, Tex.)

An immature specimen from the vicinity of Alamogordo, Otero county, N. M., appears to belong here, but it is not developed enough for positive identification.

Putorius (Lutreola) vison (Schreber).

1778. *Mustela vison* Schreber, Säugthiere, III, p. 463. (Eastern Canada.)

A skin of a mink collected at Las Vegas, San Miguel county, N. M., by Marshall Robbins, was submitted by Prof. Cockerell. In the absence of the skull and strictly comparable material, the exact relationship to the various geographic races cannot be ascertained.

Myotis evotis (H. Allen).

1864. *Vespertilio evotis* H. Allen, Monogr. Bats N. Amer., p. 48, June, 1864. (Monterey, Cal.)

Two specimens of this species have been examined, one from Sapello Cañon, Las Vegas range, San Miguel county, N. M., taken at an altitude of 10,000 feet; the other from Dry Cañon, Sacramento Mountains, Otero county, N. M.

Nyctinomus mexicanus (Saussure).

1860. *M[olossus] mexicanus* Saussure, Revue et Magasin de Zoologie, 2e sér., XII, p. 283. (Plateau and higher mountains of Central Mexico,—Cofre de Perote (13,000 feet), Ameca and foot of Popocatepetl (8,500 feet) specified.

The name *mexicanus* is used provisionally for the *Nyctinomus* of central and western Texas and southern New Mexico. Further study may show that it is not identical with the central Mexican form, but as far as can be judged by Saussure's measurements, closer relationship exists with *mexicanus* than with *cynocephalus*. The latter form is a smaller animal, the average length of the forearm in five specimens from Tarpon Springs, Fla., being 40.1 mm., while five specimens from New Mexico and Texas average 42.7 mm. True *brasiliensis* is, of course, a quite different animal. Specimens have been examined from Mesilla, Donna Ana county, N. M.; Pecos, Reeves county; Helotes, Bexar county, and San Diego, Duval county, Tex.

BIRDS.

The birds obtained number 122 specimens, representing thirty-one species, while ten others are added to the list which were seen but not secured. These latter are marked with an asterisk.

Under each species are given Mr. Rehn's field-notes relative to its distribution, abundance, etc.

***Querquedula discors** (Linn.).

"One observed in alkali stream, Laluz Cañon, April 18."

***Callipepla squamata** (Vig.).

"Several observed near the mouth of Dry Cañon, May 2 and 9."

Zenaidura macroura (Linn.).

"Observed frequently April 16 to May 19. In the open country it was most frequent about cultivated tracts, and in the cañons could almost always be looked for in the vicinity of water."

***Cathartes aura** (Linn.)?

"Seen on four occasions, April 18–29."

Dryobates scalaris bairdi (Malh.).

"Found frequently in Dry Cañon. It was comparatively wild, and showed a decided preference for a peculiar species of cactus."

Chordeiles acutipennis texensis (Lawr.).

"Found several times in the Larrea belt, and was apparently nesting between the greasewood and mesquite bushes. All those seen were flushed from the ground, but careful search failed to reveal the eggs. May 2 to May 17."

***Aëronautes melanoleucus** (Baird).

"Rather numerous in Dry Cañon. April 22 to May 20; usually noticed in the morning."

Trochilus alexandri Bourc. and Muls.

"Several times noticed in Dry Cañon, April 17 to May 19, and one female secured. A nest obtained was built upon a small bush growing horizontally from the perpendicular side of a small cañon, about ten feet from the bottom."

***Tyrannus verticalis** Say?

"Several birds apparently of this species were observed May 1 to 2, but were very wild and apparently migrants, as none were seen later."

Myiarchus cineracens (Lawr.).

"Observed almost continuously, April 18 to May 17, everywhere in the cañons and sometimes in the Larrea as well. Its favorite perch was the top of a spidery cactus or the head of a yucca."

Sayornis saya (Bonap.).

"April 22 to May 19. Rather numerous in the cañons, near water."

***Corvus corax sinuatus** (Wagl.).

"Several observed each morning, April 12 to 17, and again May 15. Seen also at Ysleta, Tex., April 4."

Corvus cryptoleucus Couch.

"One shot April 25, a mile and a half north of Alamogordo. It was feeding on the carcass of a cow."

Icterus parisorum Bonap.

" April 17 to May 16. Fairly numerous near the arroyos about the mouth of the cañons and in the lower foothills, and very shy."

***Scolecophagus cyanocephalus** (Wagl.).

"Several noticed in the town of Alamogordo, April 25 and May 22."

Carpodacus mexicanus frontalis (Say).

"Rather numerous through April, but not so common in May. Most frequent near the spring in Dry Cañon, where they could be seen at almost any time drinking from the film of water that trickled down the side of the cañon."

Astragalinus psaltria (Say).

"Seen with the preceding, April 7 to May 17." All the specimens are molting and, contrary to the custom in the Eastern *A. tristis*, the flight feathers are being renewed at the prenuptial molt.

Zonotrichia leucophrys (Forst.).

"Found both in the cañon and on the plain in the Larrea belt, always in small flocks, April 7 to April 29, and several on May 1."

Some of the males (one-year-old birds?) are in the prenuptial molt and are acquiring the black and white feathers of the crown. Other highly plumaged individuals, probably old birds, show no signs of molt.

Spizella breweri Cass.

"One secured April 15, and a number seen the next day in the Larrea."

Spizella atrigularis (Cab.).

One secured in Dry Cañon, May 17. This capture extends the range of the species some distance eastward, the Hachita Mountains being the previous limit of its distribution, so far as I can find in the records.

Amphispiza bilineata deserticola Ridgw.

"By far the most abundant and characteristic bird of the region, both on the plain and in the cañons. Observed continuously, April 7 to May 21. A nest with three eggs was found May 14, which was possibly a second clutch, as a fledgling was secured some days before."

Aimophila ruficeps scottii (Senn.).

"Seen several times in the cañons, April 11 to May 17."

Pipilo fuscus mesoleucus (Baird).

"Noticed only in the cañons and on the lower foothills, April 8 to 22."

Oreospiza chlorura (Aud.).

"Associated with the preceding. April 8 to 29."

Calamospiza melanocorys Stejn.

A number seen May 1 in the cañon. One male secured had nearly finished the molt, including the tertials, but not the rest of the flight feathers.

Piranga hepatica Swains.

A male obtained in the foothills, May 8.

***Petrochelidon lunifrons** (Say).

"Several observed May 19."

Hirundo erythrogastra Bodd.

"Observed several times, April 18, May 20 and 22."

***Tachycineta thalassina** (Swains.).

"April 7 to May 20; usually seen toward evening."

***Lanius ludovicianus excubitorides** (Swains.).

"Observed at Ysleta, Tex., April 2, and at Alamogordo, May 22."

Dendroica auduboni (Towns.).

One secured April 18, Laluz Cañon.

Helminthophila virginiæ (Baird).

One shot in Dry Cañon, April 29.

Wilsonia pusilla pileolata (Pall.).

Two obtained in Dry Cañon, April 24 and 29.

Mimus polyglottos leucopterus (Vig.).

"Abundant about the mouth of the cañon, May 8–21."

Toxostoma crissalis Henry.

"Very retiring in habits and always frequenting the mouth of the cañon, April 7 to May 16."

Heleodytes brunneicapillus couesi Mearns.

"Noticed in the foothills in small flocks, April 9."

The specimen secured seems to be unquestionably this form, although two from Pecos in the Academy's collection approach *anthonyi* somewhat in the broadening of the marks on the back.

Salpinctes obsoletus (Say).

"Noticed continuously, April 7 to May 21, in the cañons only."

Thryomanes bewickii leucogaster (Baird).

Two secured in Dry Cañon, April 25 and May 6.

Catherpes mexicanus conspersus Ridgw.

"Found in the deeper parts of the cañon, where the junipers begin and the greasewood stops, April 8 to May 17."

The wear on the plumage of the back of these birds causes a striking difference in their appearance. First the white borders to the spots are lost and then the spots themselves, leaving the back almost uniform and very different in appearance from the perfect postnuptial plumage.

Auriparus flaviceps (Sundev.).

"Noticed several times in the cañon, April 18 and May 9." A nest and set of eggs were secured.

Polioptila cærulea obscura Ridgw.

"Found almost entirely in the cañon, April 24 to May 13."

REPTILES.

Sixteen species of reptiles were obtained, many of them represented by good series of specimens. These are about equally divided between forms which range over the central Lower Sonoran area of Texas and those which are characteristic of the desert region of Arizona to the westward, the valleys of southern New Mexico being respectively the western and eastern limit of range of the two groups.

Of the species which, according to Cope, range over the first plateau region of Texas (Lower Sonoran) may be mentioned:

Sceloporus torquatus poinsetti,
?*Sceloporus consobrinus,*
Anota modesta,
Phrynosoma cornutum,
Holbrookia texana,
Salvadora grahamiæ,
Crotalus adamanteus atrox,
Crotalus confluentus.

The species of the more western desert region are:

Cnemidophorus tessellatus,
?*Cnemidophorus gularis,*
Sceloporus clarkii,
Crotaphytes c. baileyi,
Crotaphytes wislizenii,
Uta stansburyiana,
Pityophis sayi bellona.

Of course, the distribution of some of these species has not been worked out in sufficient detail to warrant positive statements as to their range, while a number of recorded localities are so obviously erroneous that we are forced to attribute them to confusion of labels, an accident which could easily happen in the early days of collecting. However, the geographic relationship of the species contained in the present collection would seem to be about as above.

To add to the value of the following list we have added notes on the species contained in a valuable collection from Pecos, Tex., recently presented to the Academy by Mr. Arthur Erwin Brown. This region being very similar in its faunal relations to the vicinity of Alamogordo, the comparison of the faunæ is of much interest.

Crotaphytes collaris baileyi (Stejn.).

Two specimens secured in Dry Cañon, May 10 and 13. Dr. Stejneger has divided the old *C. collaris* into two very closely related forms, *C. baileyi* of the western deserts and true *C. collaris* of the eastern region (Texas). In Prof. Cope's paper on the geographic position of Texas, he describes this species as ranging over what we now know as the Lower Sonoran area of that State, while according to Dr. Merriam *C. baileyi* in the western deserts is an Upper Sonoran form. It would be interesting to know the exact zonal relationship of the specimens described by Prof. Cope from western Texas and New Mexico, where he states that both forms occur together and exhibit all stages of intergradation, so far as arrangement of scales is concerned (*Crocodilians, Lizards and Snakes of North America*). A series of eleven specimens in Mr. A. E. Brown's collection from Pecos represents both forms, so that at least *C. baileyi* must be regarded as a subspecies.

Crotaphytes wislizenii B. and G.

One obtained on the plain, May 6. This species is regarded by Dr. Merriam as typical of the Lower Sonoran, but also ranging a certain distance into the Upper Sonoran belt. It has been obtained in the vicinity of Pecos, Tex., but not farther east.

Uta stansburyana B. and G.

A large number secured in the country about Alamogordo show considerable variation in color, but the relationship of the species and its possible races is too involved for present consideration.

Holbrookia texana Troschel.

This species was common in Dry Cañon. It is a characteristic form of the Lower Sonoran of central Texas, and has been obtained by Prof. Cope as far west as Lake Valley, N. M., which seems to mark the western limit of its range. Mr. Brown's Pecos collection contains several of this species.

Sceloporus torquatus poinsettii B. and G.

One adult, May 10.

This is a common species in central Texas, and has been recorded by Cope from southeastern Arizona. Even if the localities on these specimens are correct, it would seem to be decidedly an eastern species.

Mr. Brown obtained one from the vicinity of Pecos, Tex.

Sceloporus clarkii B. and G.

One young individual secured near Alamogordo, May 24.

This form is closely related to *S. magister*, but according to Dr. Stejneger is restricted to southeastern Arizona (Upper Sonoran), while the latter is characteristic of the Lower Sonoran deserts north to Utah and Nevada. This specimen represents the farthest point east at which the species has been recorded, so far as I am aware, though Prof. Cockerell has sent one to the U. S. National Museum from Las Cruces, N. M. Four specimens are in Mr. Brown's Pecos collection.

Sceloporus consobrinus B. and G.

This lizard was common in Dry Cañon as well as on the desert. It is apparently the form so identified by Cope, but probably not the one so named by Stejneger in the report on reptiles collected on the San Francisco Mountain survey. One specimen from Highrolls, Sacramento Mountains, in the Transition belt, is doubtless referable to the latter. It is darker and more heavily built than those from the desert. The material in the Academy collection has not sufficiently accurate data as to locality and altitude to properly work out this difficult group, so that the above identification must be taken as provisional. Found plentifully also at Pecos, Tex.

Phrynosoma cornutum Harlan.

Common on the plain all about Alamogordo; a typical species of the eastern Lower Sonoran region and extending well up the Rio Grande Valley in New Mexico.

Phrynosoma douglasii hernandesi Girard.

Obtained abundantly by Mr. Viereck in the Transition and Canadian belts of the Sacramento Mountains. Specimens were also secured for the Academy from Sapello Cañon. San Miguel county, N. M., in August, 1901, by Dr. Henry Skinner.

Mr. Viereck brought home a live individual of this species and kept it in captivity for some time. It proved to be an adult female, and gave birth to thirteen young. He gives me the following information relative to the operation: When first noticed four young had been born, a fifth appeared at 10.05 A.M., and after that one was deposited about every five minutes. The birth was effected by the female standing on her hind legs as high from the ground as possible. There first appeared a drop of clear fluid, followed by a bubble-like transparent membrane containing the young, which is then entirely discharged and dropped, the operation taking less than two minutes. If the young is perfect it will soon begin to wriggle, and will clear itself of the membrane in about five minutes from birth. The young are at first narrow and cylindrical, but as soon as they begin to inhale air they become broad and flat like the adult, and darken in color. They measured at birth 16 × 10 mm.

Some were evidently born prematurely and showed no signs of life; they were doubled up and surrounded by a glutinous mass.

Anota modesta (Girard).

Very common on the plains about Alamogordo. This is another species of the Lower Sonoran of central Texas, and a number are in Mr. Brown's collection from Pecos.

Cnemidophorus gularis B. and G.

Abundant in the cañons, but not found in the desert regions about Alamogordo, where its place is taken by the following species. To the westward the relative distribution of the two remains the same, *C. gularis* occupying the Upper Sonoran of Arizona east of Tucson, while *C. tessellatus* spreads over all the Lower Sonoran desert areas and, according to Dr. Merriam, pushes up some distance into the Upper Sonoran of the

Death Valley region. The exact relationship and distribution of these two forms and the eastern *C. sexlineatus* is a very difficult problem, though it would probably be much simplified by adequate material with exact data, such as that borne by the series before me. Many of the localities quoted by Prof. Cope in his *Crocodilians, Lizards and Snakes of N. A.* are so exceedingly vague and others so doubtful that they had better be ignored, at least until confirmed. After examining the material received by him from Texas, it would seem that *C. sexlineatus* extends over the Austro-riparian region of eastern Texas, departing but little from the normal type until we reach the border of the Lower Sonoran (first plateau) belt. Here we have a form closely resembling the *C. gularis* of Dry Cañon, which would seem to be the only form in central Texas. *C. grahami* Cope, of which I have examined specimens from the Staked Plains, seems to be most closely related to *C. tessellatus;* but if the central Texas form is *C. gularis,* we would have the faunal relation of the representatives of the two species exactly reversed as compared with the vicinity of Alamogordo, since the Staked Plains are Upper Sonoran, and central Texas Lower Sonoran.

The Academy has both species from the vicinity of Pecos, but without details of distribution; and as both faunal belts occur there in close proximity, it is quite possible that their distribution is as sharply limited as at Alamogordo. Mr. Brown's Pecos collection contains specimens of both *tessellatus* and *gularis,* as well as some identified as *sexlineatus.* They are accompanied by no data as to relative habitats.

Cnemidophorus tessellatus (Say).

Abundant in the desert about Alamogordo.

Pityophis sayi bellona B. and G.

A number of specimens obtained, which are probably referable to the western desert race. They possess a broad rostral, but have usually a well-indicated black, subcaudal, longitudinal stripe.

Salvadora grahamiæ B. and G.

One specimen obtained which belongs to the typical form. Several others were seen. Mr. Brown obtained one from Pecos, Texas.

Crotalus adamanteus atrox B. and G.

One specimen secured.

Crotalus confluentus Say.

One specimen which agrees exactly with Prof. Cope's type of *C. pulverulentus* from Lake Valley, N. M., but the characters do not seem to have any significance further than indicating individual variation.

The following additional species are contained in Mr. A. E. Brown's collection from Pecos, Tex.

Eumeces obsoletus B. and G.,
Uta ornata B. and G.,
Rhinochilus lecontei B. and G.,
Heterodon nasicus B. and G.,
Zamenis flagellum Shaw,
Zamenis tæniatus ornatus B. and G.,
Contia episcopa Kenn.,
Glaucona dulcis B. and G.,
Tantilla nigriceps Kenn.

BATRACHIANS.

The only Batrachian obtained was

Bufo punctatus B. and G.

Two individuals from the spring in Dry Cañon.